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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/908,732	07/20/2001	Jin-Soo Lee	LGE-012	8698

34610 7590 05/02/2005

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EXAMINER	
HUNG, YUBIN	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/908,732	LEE ET AL.	
	Examiner	Art Unit	
	Yubin Hung	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,8-12 and 18-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,8-12,18-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment/Arguments

1. This action is in response to amendment filed October 26, 2004.

2. Claims 3-7 and 13-17 have been canceled and claims 21-31 have been added. As a result claims 1, 2, 8-12 and 18-31 are still pending.

3. In view of applicant's amendment, the objection to the specification, except for the part regarding how "interoperable" is realized, is withdrawn.

4. In view of Applicant's cancellation, the objection to claim 17 has become moot.

5. Applicant's arguments with respect to claims 1, 2, 8-12 and 18-20 have been considered but are moot in view of the new ground(s) of rejection. See below.

DETAILED ACTION

Specification

6. The disclosure is objected to because of the following informalities:

- P. 2, Paragraph 5, line 3: "transferred for the second bit" should have been "transferred before the second bit"

- P. 6, paragraph 19, line 1: the meaning of "interoperable" in this context is not clear, and therefore the disclosure is not sufficient

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 23 and 25-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Vishwanath et al. (US 6,345,126).

9. Regarding claim 23, Vishwanath discloses

- transferring together and sequentially a first bit of each of a plurality of bins;
  transferring together and sequentially a second bit of each of the plurality of bins; and
  transferring together and sequentially all the bits having the same association for each of the plurality of bins until all bits have been transferred
  [Col. 1, lines 42-44. Note that progressive transmission starts with the most significant bit of all data values to be sent and that each of the data values whose bits are to be progressively transmitted are considered a value of a bin]

10. Regarding claim 25, and similarly claims 26 and 27, the first bit of each of the bins (i.e., data values) [the most significant bit is the first bit, per the analysis of claim 23 above] is inherently associated with the same threshold of 2^{k-1}, where k is the number of bits used to represent each data (e.g., 8 bits for grey levels from 0 to 255).

11. Regarding claim 28, 29 and 30,the first bit [the most significant bit, per the analysis of claim 23 above] (of a k-bit data value) inherently indicates division based on the first threshold of 2^{k-1}; the second bit indicates division (by 2^{k-2}) of the section of the value divided by the first bit (i.e., the remaining k-1 bits), and so on and so forth.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1, 2, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bitran et al. (GB 2,329,543A) and Vishwanath et al. (US 6,345,126).

14. Regarding claim 1, and similarly claim 11, Bitran et al. discloses

- receiving a first sequence of *(values)* and a second sequence of *values*
  [Fig. 3; P. 1, lines 27-30; P. 6, lines 8-13. Note that one sequence comes out of the quantization block "Q" and the other from the block labeled "Compressed Previous Frame"; the values are the quantized DCT coefficients of the respective blocks (i.e., macroblocks)]
- each *(values)* of the first sequence and each *(value)* of the second sequence is associated with a bin and a threshold
  [Fig. 3; P. 1, lines 27-30; P. 6, lines 8-13. Note that for each value (i.e., quantized DCT coefficient), its associated bin is its location (e.g., coordinates) in its macroblock and the threshold its corresponding quantization coefficient]
- wherein in the order of *(values)* of both the first sequence and the second sequence, no adjacent *(values)* have the same bin
  [This follows from the above analysis]

Note that since information describing a color histogram (see the preamble of claim 1) typically consists of a sequence of values (e.g., the values of the bins arranged in a certain order such as from the lowest RGB value to the highest), the method of Bitran can certainly receive such information.

Although in a computer application a value is ultimately represented as a bit pattern (and therefore the sequence of values are in fact a sequence of bits), Bitran does not expressly disclose that no adjacent bits have the same bin. However, it is well known that JPEG has a progressive transmission mode in which an image is transmitted with the most significant bits first, as Vishwanath mentioned in column 1, lines 42-44. [Note that while only "transmission" is mentioned here, it is obvious to one of ordinary skill in the art that transmitted bits are received in like manner.] In this manner adjacent bits correspond to different coefficients and therefore, different bins.

Bitran and Vishwanath are combinable because they both have aspects that are from the same field of endeavor of compression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bitran with the teaching of Vishwanath by progressively transmitting data, most significant bits first. The motivation would have been for the decoder on the receiving end to receive and reconstruct the image only to the level of quality that is necessary and thus saves transmission time and cost. [See Vishwanath, Col. 1, lines 53-59.]

15. Regarding claim 2, and similarly claim 12, Bitran further discloses

- comparing a bit of the first sequence with a bit of the second sequence if the bit of the first sequence and the bit of the second sequence are associated with the same bin and same threshold
  [Fig. 3, block labeled "COMPARE" ; P. 1, lines 27-30; P. 6, lines 8-13. Note that since comparison are made to quantized DCT coefficients at the same location of their respective blocks, they have the same "bin" and "threshold" (the latter from the fact of their having been quantized by the same quantizer, therefore they have the same quantization coefficient, i.e., threshold)]

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16. Claims 8-10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bitran et al. (GB 2,329,543A) and Vishwanath et al. (US 6,345,126), as applied to claims 1, 2, 11 and 12 above, and further in view of Cheung et al. ("Progressive Image Transmission by Linear Quadtree Coding and Wavelet Transformation," *13th Int'l Conf. On Digital Signal Processing, V. 2*, 1997, pp. 475-478).

17. Regarding claim 8, and similarly claim 18, the combined invention of Bitran and Vishwanath discloses everything; however, it does not expressly disclose:

- in the order of bits of both the first sequence and the second sequence, bits associated with the same threshold are grouped together in groups

However, Cheung teaches/suggests grouping bits (in the order or their respective sequences) associated with the same threshold together. [See Fig. 2.2; P. 475, Sections 2.2-2.3; P. 476, Sect. 3.3, 3rd paragraph, lines 5-7. Note that the coefficients correspond to the magnitudes and the levels the nodes reside correspond to the values. Clearly sorting in this manner will group values of the same associated magnitude together]

The combined invention of Bitran and Vishwanath is combinable with Cheung because they are from the same field of endeavor of image compression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Bitran and Vishwanath with the teaching of Cheung by grouping values with the same associated coefficient (i.e., magnitude). The motivation would have been to order information by importance, as stated in Cheung [P. 476, Sect. 3.3, 3rd paragraph, lines 5-7].

Therefore, it would have been obvious to combine Cheung with Bitran and Vishwanath to obtain the invention specified in claim 8.

18. Regarding claim 9, and similarly claim 19, Cheung further teaches

- the order of the groups is according to resolution of information of each bit of each group
[Per the analysis of claim 8; P. 476, Sect. 3.3, 3rd paragraph, lines 5-7. Note that the value of a coefficient reflects its information content, i.e., the "resolution" of information]

19. Regarding claim 10, and similarly claim 20, Cheung further teaches

- in the order of bits of both the first sequence of bits and the second sequence of bits, each bit is associated with a resolution equal to or higher than the preceding bit's
[Fig. 2.2; P. 475, Sections 2.2-2.3; P. 476, Sect. 3.3, 3rd paragraph, lines 5-7. Note that the value of a coefficient reflects its information content, i.e., the "resolution" of information. Note further that the well-known technique of sorting data (coefficient in this case) into an increasing order will result in each value being associated with a resolution equal to or higher than the preceding value's]

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20. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moed et al. (US 5,889,885) and Wittenstein et al. (US 6,026,180).

21. Regarding claim 21, Moed discloses

- selecting a number N of bins as a subset of M bins;
where N < M, and wherein N number of bins and M number of bins share at least one common threshold
[Col. 12, lines 30-31; claims 3-5. Since each bin typically corresponds to the frequency of occurrences of a range of values (with the values defining the range considered as thresholds), and that the N bins are select from the M bins, each threshold of the N bins is also a threshold of the M bins and the commonality follows]

Moed does not expressly disclose

- quantizing color information of an image using the N number of bins

- describing the image using the quantized color information

However, Wittenstein teaches/suggests quantizing colors using a color histogram (that contains a number of bins [Fig. 2, ref. 201; Fig. 3, refs 302, 303; Col. 5, lines 47-64] to result in an indexed image (considered a description of the image) [Fig. 2, ref. 202; Col. 5, lines 21-27 and 57-60].

Moed is combinable with Wittenstein because they have aspects that are from the same field of endeavor of histogram processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Moed with the teaching of Wittenstein by quantizing color information using bins of a color histogram to result in an indexed image. The motivation would have been to reduce the size of the data, as Wittenstein indicates in column 2, lines 13-24.

Therefore, it would have been obvious to combine Wittenstein with Moed to obtain the invention specified in claim 21.

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22. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moed et al. (US 5,889,885) and Wittenstein et al. (US 6,026,180) as applied to claim 21, and further in view of Abdel-Mottaleb et al. (US 6,163,622).

23. Regarding claim 22, the combined invention of Moed and Wittenstein discloses all limitations of its parent, claim 21.

The combined invention of Moed and Wittenstein does not expressly disclose

- searching images described using the method of claim 21

However, Abdel-Mottaleb teaches/suggests image searching. [Figs. 1, 2 and 4. Note that since images transferred using the method of claim 21 are images, Abdel-Mattaleb can be applied to perform searching.]

The combined invention of Moed and Wittenstein is combinable with Abdel-Mattaleb because they have aspects that are from the same field of endeavor of histogram processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify he combined invention of Moed and Wittenstein with the teaching of Abdel-Mattaleb by performing search on the described images. The motivation would have been to retrieve only images of interest or meeting certain criteria, as image search is typically used for.

Therefore, it would have been obvious to combine Abdel-Mottaleb with Moed and Wittenstein to obtain the invention specified in claim 22.

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24. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vishwanath et al. (US 6,345,126), as applied to claims 23 and 25-30 above, and further in view of Fukushima (US 5,724,457).

25. Regarding claim 24, Vishwanath discloses all limitations of its parent, claim 23.

Vishwanath does not expressly disclose

- in the event that the transfer is interrupted before completion, a query can be executed on the transferred portion

However, Fukushima teaches/suggests matching using only partial matching using the prefix (i.e., front portion) of an input (i.e., query) string. [Fig. 1, ref. 60; Col. 6, lines 10-22. Note the bits transferred prior to the interruption constitute the prefix of the entire set of bits that were to be transferred.]

Vishwanath is combinable with Fukushima because they have aspects that are from the same field of endeavor of image transmission.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Vishwanath with the teaching of Fukushima by performing query using the data received prior to transmission interruption. The motivation would have been because matching based on prefixes frequently still can provide a manageable set of candidates that can include the intended query results.

Therefore, it would have been obvious to combine Fukushima with Vishwanath to obtain the invention specified in claim 24.

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26. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vishwanath et al. (US 6,345,126), as applied to claims 23 and 25-30 above, and further in view of Abdel-Mottaleb et al. (US 6,163,622).

27. Regarding claim 31, Vishwanath discloses all limitations of its parent, claim 23.

Vishwanath does not expressly disclose

- searching images transferred using the method of claim 23

However, Abdel-Mottaleb teaches/suggests image searching. [Figs. 1, 2 and 4. Note that since images transferred using the method of claim 23 are images, Abdel-Mattaleb can be applied to perform searching.]

Vishwanath is combinable with Abdel-Mattaleb because they have aspects that are from the same field of endeavor of image transmission.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Vishwanath with the teaching of Abdel-Mattaleb by performing search on the transmitted images. The motivation would have been to retrieve only images of interest or meeting certain criteria, as image search is typically used for.

Therefore, it would have been obvious to combine Abdel-Mottaleb with Vishwanath to obtain the invention specified in claim 31.

Conclusion and Contact Information

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
April 19, 2005

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